

WHAT IS CLAIMED IS:

1. A method for detecting a folder position in a rotation touch phone having a camera, the rotation touch phone including a sensor section, a folder, a body, and a connecting section, the folder having a magnet, the sensor section including first, second and third sensors for detecting the magnet, the first and second sensors being located on the body and the third sensor being located on the connecting section, the connecting section connecting the folder to the body, the folder being movable from first, second, third and fourth states, the first state signifying a state in which the folder is initially closed, the second state signifying a state in which the folder has been opened from the first state, the third state signifying a state in which the folder has been rotated substantially 180 degrees from the second state, the fourth state signifying a state in which the folder has been closed from the third state, the method comprising the steps of:
 - i) receiving a signal from the sensor section notifying that the sensor section detects the magnet; and
 - ii) deciding that the folder is in at least one of the first to fourth states, based on the signal input from the sensor section.
2. The method as claimed in claim 1, wherein step i) includes the steps of:
 - a) transferring a signal notifying that the first sensor detects the magnet;
 - b) transferring a signal notifying that the second sensor detects the magnet; and
 - c) transferring a signal notifying that the third sensor detects the magnet.
3. The method as claimed in claim 1, wherein step ii) includes the steps of:
 - a) deciding that the folder is in the first state in which the folder is closed, when only the first sensor detects the magnet;
 - b) deciding that the folder is in the second state in which the folder has been opened, when none of the first to third sensors detect the magnet;
 - c) deciding that the folder is in the third state in which the folder has been

rotated substantially 180 degrees, when only the third sensor detects the magnet; and

d) deciding that the folder is in the fourth state in which the folder is closed, when both the second and third sensors detect the magnet.

5 4. A method for converting a mode of a rotation touch phone having a camera into a speakerphone mode by detecting a folder position, the rotation touch phone including a sensor section, a folder, a body, and a connecting section, the folder having a magnet and a bi-directional speakerphone, the sensor section including first, second and third sensors for detecting the magnet, the first and second sensors being
10 located on the body and the third sensor being located on the connecting section, the connecting section having the camera and connecting the folder to the body, the folder being movable from first, second, third and fourth states, the first state signifying a state in which the folder is initially closed, the second state signifying a state in which the folder has been opened from the first state, the third state signifying a state in
15 which the folder has been rotated substantially 180 degrees from the second state, the fourth state signifying a state in which the folder has been closed from the third state, the method comprising the steps of:

 i) converting the mode of the rotation touch phone into the speakerphone mode when the first sensor detects the magnet, which represents that the folder is in the first
20 state in which the folder is closed; and

 ii) converting the mode of the rotation touch phone into the speakerphone mode when the second sensor detects the magnet, which represents that the folder is in the fourth state in which the folder is closed by being rotated from the third state.

25 5. A method for utilizing first and second display sections as an illumination source when photographing an object by detecting a position of a folder in a rotation touch phone having a rotatable camera, the rotation touch phone including a sensor section, a folder, a body, and a connecting section, the folder having a magnet and the first and second display sections, the sensor section including first, second, and
30 third sensors for detecting the magnet, the first and second sensors being located on the body and the third sensor being located on the connecting section, the connecting section connecting the folder to the body and having the camera, the folder being

movable from first, second, third and fourth states, the first state signifying a state in which the folder is initially closed, the second state signifying a state in which the folder has been opened from the first state, the third state signifying a state in which the folder has been rotated substantially 180 degrees from the second state, the fourth state signifying a state in which the folder has been closed from the third state, the method comprising the steps of:

- i) deciding that the folder is in at least one of the first to fourth states, when the sensor section inputs a signal notifying that the sensor section detects the magnet; and
- ii) utilizing at least one of the first and second display sections as the illumination source when the folder is in at least one of the second and third states.

6. The method as claimed in claim 5, wherein step ii) includes the steps of:

- a) utilizing the second display section as the illumination source when the folder is in the second state; and
- b) utilizing the first display section as the illumination source when the folder is in the third state.

7. A rotation touch phone comprising:
- a camera adapted to take pictures for the rotation touch phone;
 - first and second display sections adapted to input and output information for the rotation touch phone;
 - a sensor section adapted to detect a position of a magnet, the sensor section including first, second and third sensors;
 - a folder adapted to move from first, second, third and fourth states, the first state signifying a state in which the folder section is initially closed, the second state signifying a state in which the folder section has been opened from the first state, the third state signifying a state in which the folder section has been rotated substantially 180 degrees from the second state, the fourth state signifying a state in which the folder section has been closed from the third state, the magnet being disposed on the folder section; and
 - a controller adapted to receive a signal from the sensor section

indicating that the sensor section detects the magnet; and decide that the folder section is in at least one of the first to fourth states, based on the signal input from the sensor section.

5 8. The apparatus of claim 7, wherein the controller is further adapted to transfer a signal indicating that the first sensor detects the magnet; transfer a signal indicating that the second sensor detects the magnet; and
transfer a signal indicating that the third sensor detects the magnet.

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 9. The apparatus of claim 7, wherein the controller is further adapted to decide that the folder is in the first state in which the folder is closed, when only the first sensor detects the magnet;
decide that the folder is in the second state in which the folder has been
15 opened, when none of the first to third sensors detect the magnet;
decide that the folder is in the third state in which the folder has been rotated substantially 180 degrees, when only the third sensor detects the magnet; and
decide that the folder is in the fourth state in which the folder is closed, when both the second and third sensors detect the magnet.

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 10. A rotation touch phone having a speakerphone and being adapted to convert into a speakerphone mode by detecting a folder position, the rotation touch phone including a sensor section, a folder, a body, and a connecting section, the folder having a magnet and a bi-directional speakerphone, the sensor
25 section including first, second and third sensors for detecting the magnet, the first and second sensors being located on the body and the third sensor being located on the connecting section, the connecting section having the camera and connecting the folder to the body, the folder being movable from first, second, third and fourth states, the first state signifying a state in which the folder is initially closed, the second state
30 signifying a state in which the folder has been opened from the first state, the third state signifying a state in which the folder has been rotated substantially 180 degrees from the second state, the fourth state signifying a state in which the folder has been

closed from the third state, the rotation touch phone comprising:

a controller for converting the mode of the rotation touch phone into the speakerphone mode when the first sensor detects the magnet, which represents that the folder is in the first state in which the folder is closed; and

- 5 converting the mode of the rotation touch phone into the speakerphone mode when the second sensor detects the magnet, which represents that the folder is in the fourth state in which the folder is closed by being rotated from the third state.

11. A touch tone phone having a rotatable camera that utilizes first and
10 second display sections as an illumination source when photographing an object by detecting a position of a folder in the rotation touch phone, the rotation touch phone including a sensor section, a folder, a body, and a connecting section, the folder having a magnet and the first and second display sections, the sensor section including first, second, and third sensors for detecting the magnet, the first and second sensors being
15 located on the body and the third sensor being located on the connecting section, the connecting section connecting the folder to the body and having the camera, the folder being movable from first, second, third and fourth states, the first state signifying a state in which the folder is initially closed, the second state signifying a state in which the folder has been opened from the first state, the third state signifying a state in
20 which the folder has been rotated substantially 180 degrees from the second state, the fourth state signifying a state in which the folder has been closed from the third state, the touch tone phone comprising:

- a controller adapted to decide that the folder is in at least one of the first to fourth states, when the sensor section inputs a signal indicating that the sensor section
25 detects the magnet; and utilizing at least one of the first and second display sections as the illumination source when the folder is in at least one of the second and third states.

12. The touch tone phone of claim 11, wherein the controller is further adapted to utilize the second display section as the illumination source when
30 the folder is in the second state; and utilize the first display section as the illumination source when the folder is in the third state.